

# REMARKS

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Claims 1-5, 7-9 and 11-15 stand rejected under 35 USC § 103(a) as being obvious from Jagannathan et al. U.S. Patent No. 5,692,193 in view of Ault et al U.S. Patent No. 6,085,217. Applicants respectfully traverse this rejection and request reconsideration.

## **Claims 1-5, 7-9 and 11-15**

Independent claims 1, 7 and 11 recite a method of parallel processing in a memory structure utilizing two threads which each represent an independent flow of control managed by separate program structures. A first thread is created in the memory structure which has two states: 1) processing work for the program structure, and 2) undispached awaiting work to process. The method involves using the second thread to prepare work for the first thread to process and placing the work in a queue. If the first thread is awaiting work to process when the work is placed in the queue, the first thread is dispatched and processes the work in the queue. If the first thread is processing other work when the second thread place the work in the queue, the first thread completes processing of the other work then accesses the work and processes it from the queue. After the first thread completes a desired amount of work, the program structure destroys it in the memory structure.

reused as desired by the program structure, and destroyed after it completes a desired amount of work.

The Jagannathan patent discloses the use of a thread T having a thread control block TCB that includes the thread's sub state of execution on a virtual processor VP, such as not initialized, ready, evaluating, executing, blocked, suspended, or finished executing. Column 13, line 35 to column 14, line 4. In the February 13 Office Action, the Examiner likens the Jagannathan thread T to applicants' "first thread" as described in the claims of the instant application. See Office Action, p.2. However, the Jagannathan patent does not disclose that the thread T has work prepared for it by a second thread. Also, while the Examiner contends that the Jagannathan patent at column 13, line 67 to column 14, line 2 discloses that the program structure is used to destroy the thread T after it completes a desired amount of work (see Office Action, p.3), there is no such disclosure or suggestion made of such thread destruction.

The Ault patent discloses the use of a "listening daemon" to call a "putwork() service" representing a service request in a server system. Column 3, lines 30-35. While the Examiner apparently likens this disclosure to applicants' claimed "second thread," there is no disclosure that either Ault's "listening daemon" or "putwork() service" is a "second thread in the memory structure which represents an independent flow of control managed by a program structure separate from the first thread" as described in applicants' independent claims 1, 7 and 11. Ault also discloses the use of a "worker thread" that receives work requests from the "putwork() service" or "getwork() service" and performs the work. Column 5, line 66 to column 6, line 64.

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Ault's distinction between the terms "listening daemon," "putwork() service" and "getwork() service" on one hand, and "worker thread" on the other hand, indicates that the former do not comprise a "second thread in the memory structure which represents an independent flow of control managed by a program structure separate from the first thread" as applicants claim.

Accordingly, one of ordinary skill in this art would not combine the disclosures of Jagannathan and Ault in the manner envisioned by the Examiner. Neither patent discloses the use of interacting first and second threads, where the latter represents an independent flow of control managed by a program structure separate from the first thread. The present invention as defined by applicants' claims is therefore not *prima facie* obvious, since the hypothetical combination of does not suggest the use of an independent second thread to prepare work in a queue for the first thread to process. The depiction of applicants' "second thread" in the Ault disclosure is chosen solely as a result of the hindsight benefit of reading applicants' own specification.

Applicants' claimed invention is furthermore not obvious since neither patent discloses the destruction of the first thread by the program structure after a desired amount of work is completed, as specified in the claims.

#### **New claims 17-19**

Applicants have also added new claims 17-19, dependent on independent claims 1, 7 and 11, respectively. Each of these new claims specifies that the memory structure

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includes a plurality of planes each having a context comprising: a) a thread representing an independent flow of control managed by a program structure, b) a heap portion for data structure, and c) a plurality of stack portions for function arguments, each thread using a different stack portion, and wherein only one of the first and second threads uses a context at any particular time. Support is found in the specification at page 10, line 25 to page 11, line 19, and in the drawings in Figs. 3-5; no new matter is added.

Neither Jagannathan nor Ault disclose providing the memory structure as described in claims 17-19, nor do they suggest operating applicants' first and second threads so that only one of the first and second threads uses a context at any particular time. As such, new claims are not obvious from the hypothetical combination of the Jagannathan and Ault patents.

For the reasons given above, applicants submit that the claims of the instant application are in condition for allowance. Reconsideration of the rejection and allowance of the claims re respectfully requested. Any questions which may be handled by telephone should be directed to the undersigned at (203) 787-0595.

Respectfully submitted,



Peter W. Peterson  
Reg. No. 31,867

**DeLIO & PETERSON, LLC**  
121 Whitney Avenue  
New Haven, CT 06510-1241  
(203) 787-0595  
ibmf100273000amdE.doc